

[Federal Register: December 10, 2007 (Volume 72, Number 236)]  
[Rules and Regulations]  
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[DOCID:fr10de07-8]

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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2007-0302; Directorate Identifier 2007-NM-161-AD; Amendment 39-15301; AD 2007-25-19]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Boeing Model 747-400 Series Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final rule; request for comments.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for certain Boeing Model 747-400 series airplanes. This AD requires repetitive inspections to detect discrepancies of the forward and rear heat exchanger shells of the air distribution system of the crew rest area, and applicable corrective actions. This AD also requires an inspection to identify the part number, shop code, and build date of the forward and rear heat exchanger shells of the air distribution system of the crew rest area, and applicable corrective actions, which end the repetitive inspections. This AD results from a report of an uncommanded up and down pitch movement of an airplane in flight and resistance in the elevator controls on the ground during taxi. We are issuing this AD to prevent cracking and buckling of the forward or rear heat exchanger shell of the air distribution system of the crew rest area, which could result in jamming of the rudder and/or elevator control cables and consequent reduced controllability of the airplane.

**DATES:** This AD becomes effective December 26, 2007.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of December 26, 2007.

We must receive comments on this AD by February 8, 2008.

**ADDRESSES:** You may send comments by any of the following methods:

Federal eRulemaking Portal: Go to <http://www.regulations.gov>.

Follow the instructions for submitting comments.

Fax: 202-493-2251.

Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.

Hand Delivery: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this AD, contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (telephone 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Barbara Mudrovich, Aerospace Engineer, Cabin Safety and Environmental Systems Branch, ANM-150S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6477; fax (425) 917-6590.

## **SUPPLEMENTARY INFORMATION:**

### **Background**

We previously issued AD 2001-18-04, amendment 39-12430 (66 FR 46512, September 6, 2001), applicable to certain Boeing Model 747-400 series airplanes. That AD requires repetitive inspections to detect damage or deflection of the crew rest heat exchanger (forward heat exchanger only), and follow-on actions if necessary. That AD also requires a one-time inspection to determine the part number and shop code of the shell of the crew rest area heat exchanger (forward heat exchanger only), and follow-on actions if necessary, which terminate the repetitive inspections.

### **Discussion**

Since issuance of AD 2001-18-04, we have received a report of uncommanded up and down pitch movement of an airplane in flight and resistance in the elevator controls on the ground during taxi on a Boeing Model 747-400 series airplane. An inspection revealed that the rear heat exchanger shell of the air distribution system of the crew rest area had expanded and deformed inboard and downwards, contacting the elevator control cables, which restricted their movements. Another inspection revealed that the thickness of certain forward heat exchanger shells of the air distribution system of the crew rest area, including forward heater exchanger shell subject to the requirements of AD 2001-18-04, was incorrect. The incorrect shells were manufactured from two-ply laminate instead of three-ply laminate.

Cracking and buckling of the forward or rear heat exchanger shell of the air distribution system of the crew rest area, if not corrected, could result in jamming of the rudder and/or elevator control cables and consequent reduced controllability of the airplane.

### **Relevant Service Information**

Boeing has issued Service Bulletin 747-21A2439, Revision 2, dated May 24, 2007. The service bulletin describes the following procedures:

Repetitive general visual inspections of the forward and rear heat exchanger shells of the air distribution system of the crew rest area for discrepancies (i.e., cracks, creases, deformation,

deflection, and interference with the rudder and/or elevator cables), and applicable corrective actions (Work Package 1).

An inspection to identify the part number, shop code, and build date of the forward and rear heat exchanger shells of the air distribution system of the crew rest area, and applicable corrective actions (Work Package 2). Accomplishing these actions eliminates the need for the repetitive inspections.

The corrective actions include replacing any discrepant forward or rear heat exchanger shell of the air distribution system of the crew rest area with a certain new heat exchanger shell, measuring the shell material thickness, repairing holes, re-marking the part number of the forward heat exchanger shell, and making sure the ten common fasteners are fully installed; as applicable.

The compliance time specified in the service bulletin for accomplishing Work Package 1 is 1,200 flight hours or 90 days, whichever occurs first, and thereafter at intervals not to exceed 2,500 flight hours. The compliance time specified in the service bulletin for accomplishing Work Package 2 is 24 months.

Accomplishing the actions specified in the service information is intended to adequately address the unsafe condition.

### **FAA's Determination and Requirements of This AD**

The unsafe condition described previously is likely to exist or develop on other airplanes of the same type design that may be registered in the U.S. at some time in the future. Therefore, we are issuing this AD to prevent cracking and buckling of the forward or rear heat exchanger shell of the air distribution system of the crew rest area, which could result in jamming of the rudder and/or elevator control cables and consequent reduced controllability of the airplane. This AD requires accomplishing the actions specified in the service information described previously.

### **Differences Between This AD and Service Information**

For Work Package 1, Table 1 of paragraph 1.E. of Boeing Service Bulletin 747-21A2439, Revision 2, specifies a compliance time of 1,200 flight hours or 90 days for accomplishing both the general visual inspections and replacement of the heat exchanger shells if necessary. We have determined that, because of the safety implications and consequences associated with cracking, any cracked heat exchanger shell must be replaced before further flight. Therefore, for Work Package 1, this AD requires that the applicable corrective actions for that work package, which include replacement of any discrepant forward or rear heat exchanger shell, be done before further flight. This difference has been coordinated with Boeing.

### **Costs of Compliance**

None of the airplanes affected by this action are on the U.S. Register. All airplanes affected by this AD are currently operated by non-U.S. operators under foreign registry; therefore, they are not directly affected by this AD action. However, we consider this AD necessary to ensure that the unsafe condition is addressed if any affected airplane is imported and placed on the U.S. Register in the future.

The following table provides the estimated costs for U.S. operators to comply with this AD for any affected airplane that might be imported and placed on the U.S. Register in the future.

## Estimated Costs

Action	Work hours	Average labor rate per hour	Cost per airplane
Inspection (Work Package 1)	Between 1 and 3 <sup>1</sup>	\$80	Between \$80 and \$240, per inspection cycle
Inspection (Work Package 2)	Between 1 and 3 <sup>1</sup>	\$80	Between \$80 and \$240

<sup>1</sup> Depending on the airplane configuration.

### FAA's Determination of the Effective Date

No airplane affected by this AD is currently on the U.S. Register. Therefore, providing notice and opportunity for public comment is unnecessary before this AD is issued, and this AD may be made effective in less than 30 days after it is published in the Federal Register.

### Comments Invited

This AD is a final rule that involves requirements affecting flight safety, and we did not provide you with notice and an opportunity to provide your comments before it becomes effective. However, we invite you to send any written data, views, or arguments about this AD. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2007-0302; Directorate Identifier 2007-NM-161-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this AD. We will consider all comments received by the closing date and may amend this AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this AD.

### Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the regulation:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket. See the ADDRESSES section for a location to examine the regulatory evaluation.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

### **PART 39—AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

**Authority:** 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The Federal Aviation Administration (FAA) amends § 39.13 by adding the following new airworthiness directive (AD):



**2007-25-19 Boeing:** Amendment 39-15301. Docket No. FAA-2007-0302; Directorate Identifier 2007-NM-161-AD.

**Effective Date**

(a) This AD becomes effective December 26, 2007.

**Affected ADs**

(b) None.

**Applicability**

(c) This AD applies to Boeing Model 747-400 series airplanes, certificated in any category; as identified in Boeing Service Bulletin 747-21A2439, Revision 2, dated May 24, 2007.

**Unsafe Condition**

(d) This AD results from a report of an uncommanded up and down pitch movement of an airplane in flight and resistance in the elevator controls on the ground during taxi. We are issuing this AD to prevent cracking and buckling of the forward or rear heat exchanger shell of the air distribution system of the crew rest area, which could result in jamming of the rudder and/or elevator control cables and consequent reduced controllability of the airplane.

**Compliance**

(e) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

**Inspections and Corrective Actions**

(f) At the applicable times specified in the Table 1 of paragraph 1.E. of Boeing Service Bulletin 747-21A2439, Revision 2, dated May 24, 2007, except as provided by paragraph (g) of this AD, do the actions specified in paragraphs (f)(1) and (f)(2) of this AD by accomplishing all the actions specified in the Accomplishment Instructions of the service bulletin.

(1) Do repetitive general visual inspections to detect discrepancies (i.e., cracks, creases, deformation, deflection, and interference with the rudder and/or elevator cables) of the forward and rear heat exchanger shells of the air distribution system of the crew rest area, and do the applicable corrective actions, until the actions required by paragraph (f)(2) of this AD are done. The applicable corrective actions must be done before further flight.

(2) Do an inspection to identify the part number, shop code, and build date of the forward and rear heat exchanger shells of the air distribution system of the crew rest area, and before further flight, do the applicable corrective actions. Accomplishing these actions ends the repetitive inspections required by paragraph (f)(1) of this AD.

(g) Where Boeing Service Bulletin 747-21A2439, Revision 2, dated May 24, 2007, specifies a compliance time "after the release date of the service bulletin" or "after the date of Revision 02 of the service bulletin," this AD requires compliance within the specified compliance time after the effective date of this AD.

### **Actions According to Previous Issues of Service Bulletin or Previously Accomplished Inspections**

(h) Actions done before the effective date of this AD in accordance with Boeing Alert Service Bulletin 747-21A2439, dated November 3, 2005; or Boeing Service Bulletin 74721A2439, Revision 1, dated July 24, 2006; are acceptable for compliance with the corresponding actions specified in this AD.

(i) If a forward heat exchanger shell, part number 65B41601-52, is found installed during the replacement required by paragraph (c) of AD 2001-18-04, amendment 39-12430, or was installed during the inspection required by paragraph (d)(2) of that AD (AD 2001-18-04 refers to Boeing Alert Service Bulletin 747-21A2412, dated January 20, 2000; or Revision 2, dated November 30, 2000; as the appropriate sources of service information for accomplishing the required actions): Actions required by paragraphs (f)(1) and (f)(2) of this AD are not required for that forward heat exchanger shell only.

### **Parts Installation**

(j) As of the effective date of this AD, no person may install a heat exchanger shell having a part number identified in the "Existing Part Number" column of the table specified in paragraph 2.C. of Boeing Service Bulletin 747-21A2439, Revision 2, dated May 24, 2007, on any airplane.

### **Special Flight Permits**

(k) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be done, except as provided by paragraphs (k)(1) and (k)(2) of this AD.

(1) If any forward or rear heat exchanger shell of the air distribution system of the crew rest area is found deflecting or interfering with the rudder and/or elevator control cables (e.g., chafing, rubbing, or contacting) during any inspection required by paragraph (f)(1) of this AD, special flight permits are not allowed.

(2) If any crack or crease is found on the forward or rear heat exchanger shell of the air distribution system of the crew rest area during any inspection required by paragraph (f)(1) of this AD, the air distribution system in the crew rest area must be inoperative during flight.

### **Alternative Methods of Compliance (AMOCs)**

(1)(1) The Manager, Seattle Aircraft Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested in accordance with the procedures found in 14 CFR 39.19.

(2) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

## **Material Incorporated by Reference**

(m) You must use Boeing Service Bulletin 747-21A2439, Revision 2, dated May 24, 2007, to perform the actions that are required by this AD, unless the AD specifies otherwise. The Director of the Federal Register approved the incorporation by reference of this document in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207, for a copy of this service information. You may review copies at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on November 30, 2007.

Stephen P. Boyd,

Assistant Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. E7-23850 Filed 12-7-07; 8:45 am]